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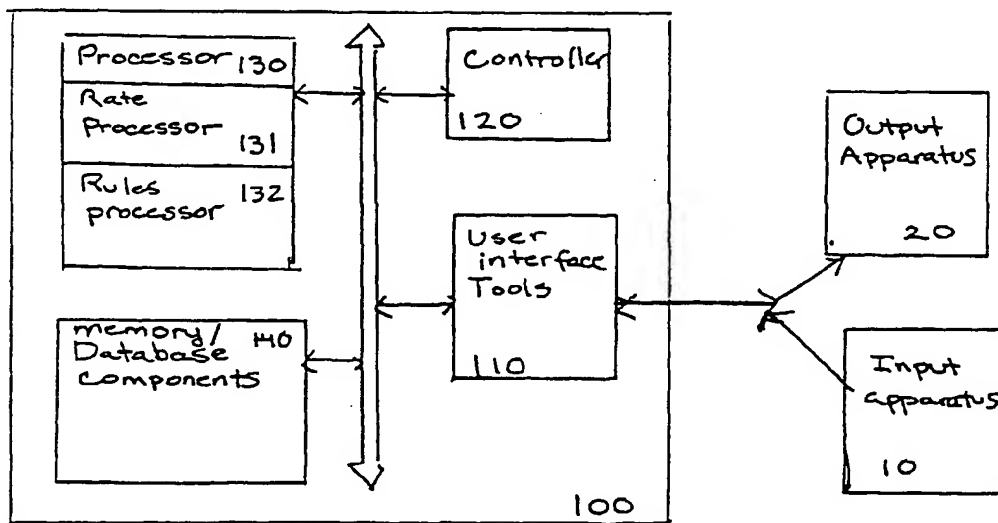
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(54) Title: PROCESS FOR DETERMINING ANNUITY INCOME PAYMENTS BASED ON FIXED INDICES



(57) Abstract: A process (100) for determining annuity income payments is disclosed that bases interest income calculations on a known rate (131) such as the national one-year CD average interest rate.

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## **PROCESS FOR DETERMINING ANNUITY INCOME PAYMENTS BASED ON FIXED INDICES**

### **FIELD OF THE INVENTION**

5           The invention of the present application relates to a process for determining annuity income payments realized from an investment of principal in an annuity product which uses a fixed, objective index for determining the interest earned on the principal.

### **BACKGROUND OF THE INVENTION**

10           Annuities are tax-deferred investment products that can provide long term earnings for investors. Annuities have traditionally been used to provide purchasers with a stable retirement income. At least three types of deferred annuities including (1) variable annuities, (2) fixed annuities, and (3) indexed  
15           annuities, having different advantages and disadvantages, are generally available.

          Regardless of which type of the aforementioned annuities is selected, when an investor purchases an annuity, also known as a long-term investment contract, the investor pays an insurer an initial sum of money  
20           (called a premium or the principal) and the insurer invests that principal in an investment type of financial product to earn interest or dividends. In return for the initial sum of money and the use of that money, the insurer guarantees the investor a steady stream of income payments beginning at a specified date in the future and lasting for a specified period of time. While the  
25           principal is set aside in the investment vehicle, the initial sum of money grows or compounds over time, but the investor does not have to pay any taxes on the income realized. This phase of an annuity contract is referred to as the accumulation phase. Once the investor has accumulated the amount of money the investor needs for retirement, the investor can begin to receive  
30           regular income payments made from the accumulated investment moneys. Only when the investor begins to receive income payments are the moneys subject to tax as ordinary income.

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On disadvantage to an annuity contract is that it typically has a date which, if the investor wishes to withdraw his/her moneys prior to such date, the investor will be penalized and will have to pay the insurer a surrender charge. (We will refer to this date as the "surrender charge period date.")

5 Additionally, if the investor withdraws his/her money out of the annuity contract prior to retirement, the Internal Revenue Service also requires payment of a penalty since he/she had the benefit of tax-deferred treatment during the time the money was invested.

As set forth above, there are several standard types of annuity  
10 contracts which insurers offer. A "fixed annuity" is an annuity where the insurer guarantees the investor a payment of a fixed rate of return on the principal invested during the accumulation period and a guaranteed income for life if the investor "annuitizes" or converts the annuity into a stream of regular income payments. The insurer takes responsibility for investing the  
15 investor's principal in whatever types of financial products it believes will earn enough income to enable it to meet its obligations under its guaranteed rate of return to the investor. Assuming that the investor holds the annuity contract until after the surrender charge period date, the benefit of such a fixed annuity contract to the investor is in having a guaranteed income payment stream  
20 over a long period of time. The investor is essentially betting that he/she will live a longer period of time than expected and will therefore realize a substantially higher amount of money in the guaranteed income payments than the initial principal investment. On the other hand, the insurer is betting on the opposite scenario, i.e., that the investor will not live long enough to  
25 realize income payments which equal the value of his/her initial investment.

Fixed annuities used to be the most popular type of annuities because of their safe and predictable rates of return. Insurers often place fixed annuity contract payments into bonds and other conservative types of investment vehicles. Since fixed annuities guarantee a specific return, they are attractive  
30 to potential investors when the equity stock market is under-performing and interest rates are on the rise. However, under fixed annuity contracts, the investor is generally not advised of and does not participate in the insurer's

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investment choices and thus has to trust the insurer to make wise investment decisions. Since investors tend to lack trust in insurers, investors are less likely to invest in fixed annuities. Additionally, insurers usually do not disclose to investors the manner in which they determine the rate of return on the initial principal investment. Moreover, under recent economic conditions, fixed annuities have not been a popular choice as investors have preferred to participate in the strong equity markets with the current higher rate of return on investment. Thus, insurers' sales of fixed annuity contracts have declined in the past several years.

Variable annuities have become more popular in recent years. With a variable annuity contract, the investor can decide how his/her principal will be allocated among a specific menu of investment vehicles, or sub-accounts, offered by the insurer. Sub-accounts are pooled investments of a number of investors, similar to mutual funds, with varying investment objectives and strategies and typically have a professional fund manager similar to managers of mutual funds. The manager of the sub-account will decide where to invest the pooled funds based upon the objectives of the particular sub-account, e.g., growth, emerging industries, bonds, etc. The accumulated moneys in the annuity account of an investor fluctuate with market values and with the investor's choices of sub-accounts.

Variable annuities have advantages over fixed annuities since they enable the investor to direct how his/her principal will be invested. Moreover, variable annuities could potentially enable the investor to earn more money on the initial investment of principal than he/she could with a fixed annuity contract if the investor selects strong sub-accounts with high rates of return on investment. However, the variable annuity contract makes no promises to the investor regarding the amounts earned and paid out after the accumulation period, so the investor could also potentially end up earning less money than desired if the sub-accounts selected by the investor are weak or poorly perform. Since the value of variable annuities are tied to the risks inherent in the stock market, a downturn in the stock market could cause

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the value of these variable annuities to drop. These annuities are therefore not desirable to those investors who are risk averse.

A relatively recent annuity product is an indexed annuity. In an indexed annuity contract, the invested principal accumulates based on interest rates tied to some common index, such as Standard & Poor's stock market index, for example. An investor in an indexed annuity has the potential to earn a greater amount of money on his/her initial investment of principal than under a fixed annuity contract since the rate of return on the principal is based on changes in the index. Typically, the insurer in an indexed annuity contract also guarantees the return of the initial principal if the investor holds the contract until maturity. The initial principal is usually protected by a minimum guaranteed rate. Currently, with the strong performance of the stock market, investors have been purchasing more indexed annuity contracts, and have desired an annuity product tied to a stock market index. However, if there is a downturn in the stock market, the value of the annuities tied to a stock market index will decrease. Again, this type of annuity product is not desirable for investors who are risk averse.

In addition to the disadvantages for investors that are inherent in the types of annuity products described above, such annuities present disadvantages for insurers as well. Insurers face higher barriers to entry into the variable annuities market in that different expertise and distribution channels are required than those for standard insurance products. The insurer needs to have professional fund managers for the management of the annuity sub-accounts similar to those that manage mutual funds. These professional fund managers must be specially trained to wisely manage the investment of a fund of pooled investments. Insurers may therefore have to outsource the management of the variable annuity sub-accounts thereby adding operating costs. Moreover, there is inevitably some degree of risk associated with making these investment decisions. A manager must select investment vehicles wisely in order to maximize the amount of return. If investment vehicles are not wisely selected, then the insurer may not realize any profit from the sale of such products. Also, the insurer's sales forces are

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us d to dealing in insurance products and less complex typ s of annuity products and may need to be specially trained to sell variable annuity products. Additionally, there is some degree of competition between variable annuities and mutual funds among the investing public and the insurers  
5 frequently lose potential sales to managers of mutual funds. This is sometimes due to the fact that the accumulation on the principal is taxed as ordinary income whereas the gains made on investments in mutual funds are taxed at the more favorable rate of capital gains.

Thus, none of the above-described annuity products has been fully  
10 satisfactory to both investors and insurers.

#### **SUMMARY OF THE INVENTION**

It is, accordingly, an object of the present invention to provide a process for determining rates of return on principal for an annuity product that  
15 are determined based on a fixed index that is generally known to investors and is not determined by an insurer.

It is an additional object of the invention to provide an annuity income process that is easy for an insurer to administer.

Additional objects and advantages of the invention will be set forth in  
20 the description which follows, or will be obvious from the description, or may be learned by practice of the invention.

To achieve the foregoing objects, and in accordance with the purposes of the invention as embodied and broadly described herein, a process for providing an investor with periodic income payments of the present invention  
25 is described using at least an initial contribution of money as principal. The process comprises the steps of: (a) providing a first interest rate for a first predetermined period, wherein the first interest rate is based on a national average interest rate index; (b) providing a second interest rate for the first predetermined period as a minimum interest rate; (c) comparing the first  
30 interest rate to the second interest rate and, if the first interest rate is greater than th minimum inter st rate, then the first int rest rat is multiplied by the principal to arriv at a first amount of interest earned on the principal for the

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first predetermined period, and wherein the principal plus the first amount of interest is equal to a first accumulated sum, and if the first interest rate is less than the second interest rate, then the second interest rate is multiplied by the principal to arrive at a second amount of interest earned on the principal for the first predetermined period, and wherein the principal plus the second amount of interest is equal to the first accumulated sum; (d) repeating steps (a) through (c) for a second predetermined period equal to the first predetermined period; (e) repeating steps (a) through (d) periodically until a predetermined end date is reached; and (f) after the predetermined end date is reached, withdrawing portions of the accumulated sum on a periodic basis.

The accompanying drawings, which are incorporated in and constitute a part of this specification, together with the description, serve to explain the principles of the invention.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is a block diagram illustrating a system for implementing the process of the invention;

Figure 2 is a flow chart illustrating a process for providing a fixed-index annuity product of the invention;

Figure 3 is a flow chart illustrating the process of making initial interest calculations for a first predetermined period;

Figure 4 is a flow chart illustrating the process of making interest calculations after the expiration of the first predetermined period; and

Figure 5 is a flow chart illustrating a rules-based process for taking action in response to an investor's request for withdrawal of moneys from the investor's annuity account.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Reference will now be made in detail to the present preferred embodiment of the invention, an example of which is illustrated in the accompanying drawings in which like reference numerals refer to corresponding elements.

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Fig. 1 illustrates a system 100 that may be used to perform the process of the invention. The system 100 may comprise user interface tools 110, a controller 120, a processor 130, and a memory 140. An input apparatus 10 and an output apparatus 20 operate in conjunction with system 100.

5 If the system 100 is connected over a network such as a LAN or the Internet to investors, input apparatus 10 and output apparatus 20 may be remote computers for use by such investors. Such computers 10 and 20 could include a plurality of input/output devices, a processor, a controller, and a memory. Alternatively, the input apparatus 10 could be provided as a  
10 mouse, a keyboard, or a touch screen display in conjunction with system 100. The output apparatus 20 could comprise a remote or a local computer screen or printer. Controller 120 may be implemented as a typical controller capable of controlling data flow between all of the aforementioned components.

User interface tools 110 may exist in any commonly-known format and  
15 may further depend on the types of input apparatus 10 and output apparatus 20 intended to be used.

Processor 130 preferably includes a rate processor 131 and a rules processor 132 which retrieve a plurality of database components stored in memory (memory/database components 140). The rate processor 131  
20 calculates applicable interest rates and the rules processor 132 makes a plurality of calculations based upon a plurality of stored rules and outputs a plurality of results of such calculations. Memory/database components 140 typically include information relevant to the investor such as the investor's age, the investor's life expectancy (or, in the case of joint owners of the annuity, then ages and life expectancies for both joint owners are input), a  
25 date on which the investor purchased an annuity contract, a date of settlement or a maturity date for the annuity contract, i.e., the date on which income payments to the investor can begin without penalty, i.e., the surrender charge period date (and prior to which, if the investor wishes to withdraw funds, the investor will be required to pay certain surrender penalties for early withdrawal), an amount of principal invested in the annuity contract, and other  
30 similar types of information relevant to typical annuity contracts.



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Fig. 2 illustrates a process for providing a fixed index annuity product having a rate of return on the principal invested that is linked to a highly regarded and recognizable index. This annuity product removes the "trust me" barrier to sales of annuities, thus meeting one of the needs of both the investor and the insurer. The annuity product and process of the invention are targeted to investors who desire a level of certainty with regard to the amount of income made on the investment, but who may desire some degree of variability in the potential earnings to take advantage of good economic conditions rather than investing in a lower risk standard fixed annuity.

As shown in Fig. 2, in a preferred embodiment, in procedure A, the process of the invention begins by inputting the amount of principal invested by the investor in the annuity product and the other required information relevant to the investor as described above. The input investor information will be stored in memory/database components 140. Preferably, the principal is paid in one lump sum payment up-front at the time the investor purchases the annuity contract. Alternatively, however, the investor may make periodic multiple payments of principal towards the purchase of the annuity. The insurer will then establish an annuity account for the investor. In procedure B, a first interest rate is calculated for a first predetermined period of time, and is then multiplied by the principal to arrive at a first amount of interest earned on the principal. The first amount of interest is then added to or accumulated with the principal in the investor's account for a first accumulated sum. In procedure C, a second interest rate is calculated for a second predetermined period of time, and is multiplied by the first accumulated sum to arrive at an amount of interest earned for the second predetermined period of time. The amount of interest for the second predetermined period of time is then added to the first accumulated sum in the investor's account for a second accumulated sum. In procedure D, additional interest income for additional periods of time may be calculated in a similar manner. This process can continue until the surrender charge period date is reached whereupon the investor may begin making withdrawals of income from the account without incurring a surrender charge penalty.

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In a preferred embodiment of procedure A, the annuity product of the present invention is purchased with a single up-front lump sum premium payment. The amount of the premium will vary depending upon the investor's future income needs and the particulars of the investor's current financial circumstances. As an alternative to the single up-front premium, the investor could make a series of payments of principal. It is preferable that the amount of the premium fall between a minimum initial premium of \$5,000 and a maximum initial premium of \$500,000. At the time of the purchase of the annuity contract by the investor, the investor will provide the relevant investor information as described above and such investor information will be stored in memory/database components 140.

The steps involved in procedure B are further illustrated in conjunction with Fig. 3. In step B1, the interest rate to be used for calculating the interest earned on the original investment of principal for the first predetermined period of time is based on some known, external, national benchmark index such as the national one-year certificate of deposit (CD) index, such as that published by BanxQuote. Alternatively, the national three-year CD index, the national one-year or three-year Treasury bill indices or other similar fixed national published indices can be used as the initial index for calculating the interest rate for the first predetermined period of time. The initial interest rate index will be guaranteed in the annuity contract so as to remove any uncertainty in the minds of investors as to how the interest rate will be calculated, thus eliminating the "trust me" factor which served to decrease sales of fixed annuity products in the past.

In determining the interest rate to be used for calculating interest income earned on the principal for the first predetermined period of time, rate processor 131 will start from this external national index. The first predetermined period of time will be established in the investor's annuity contract and can be any suitable period of time, such as a one-year period. This first predetermined period of time can start on the effective date of the annuity contract and can therefore run until the one-year anniversary of such effective date.

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After the national average interest rate for one-year CDs is determined in step B1 (if the one-year CD is used as the index), in step B2, basis points may then be added to the index rate rate. The basis points can vary from .01% to 1%. The amount of basis points that may be added to the national average interest rate index may vary. The amount of basis points added is determined by the returns on the insurer's investment portfolio. Basis points are added to the national average interest rate index in order to entice investors to purchase the annuity rather than making another investment, such as investing in a CD. The insurer will be able to promote that the annuity will earn more than a CD since it is tied to the CD index interest rate but then has additional basis points to render the interest rate of the annuity higher than the CD index interest rate. In step B3, bonus points may also be added to the interest rate calculation if the insurer desires to add additional incentives to drive more purchases of the annuity. Thus, the total first interest rate for the first predetermined period of time will equal the sum of the external index rate plus the basis points plus the bonus points. The aforementioned bonus points or enhancement points added in step B3 could be adjusted based on periodic reviews. An exemplary interest rate in the current market would be based on a national average rate for one-year CDs of 5.05%. Basis points, preferably .25%, are then added. Finally bonus points, for example 2.0%, are added. Accordingly, the first interest rate total for the first predetermined period of time (equal to one year) is 7.30%.

The first interest rate total may then be compared to a second interest rate, for example a minimum guaranteed interest rate (e.g., 3%) and, if the first interest rate total is less than the minimum guaranteed interest rate, then the minimum guaranteed interest rate may be used instead of the first interest rate total for calculating the interest earned on the principal during the first predetermined period of time. Again, by using a minimum guaranteed interest rate, the investor gets some of the advantages of a fixed annuity product (i.e., certainty), but also gets the upside potential of a higher rate of interest where the index rate is higher than the minimum guaranteed rate.

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Fig. 4 illustrates calculation of a second interest rate for a second predetermined period of time after the expiration of the first predetermined period of time. In a preferred embodiment, this second interest rate is applicable during each one-year period for years two through the surrender charge period date of the annuity contract. In step C1, the then-current national average interest rate for one-year CDs (or whatever national index is being used) is determined and is applied whether it is higher or lower than the first interest rate used during the first predetermined period of time. Additionally, the basis points are added in step C2 as described with reference to the first predetermined period of time. Bonus points may or may not be added to the sum. In step C3, the total of the index rate plus basis points (if any) plus bonus points (if any) is compared to the guaranteed minimum interest rate. In step C4, a comparison is conducted to determine if the total does not exceed the guaranteed minimum interest rate, the guaranteed minimum interest rate will be used to calculate interest income for the second predetermined period of time. If the total of step C3 is greater than the guaranteed minimum interest rate, then the total of step C3 is used to calculate the interest income for the second predetermined period of time. The guaranteed minimum interest rate of the preferred embodiment is three percent.

The process shown in FIGS. 2-4 can continue for each year thereafter until the surrender charge period date of the annuity contract. Alternatively, following the second predetermined period of time, a different index may be used for determining the interest income.

As explained above, a rules processor 132 and memory/database components 140 operate together to take appropriate action in response to investor requests. For example if the investor desires withdrawal of moneys from his/her annuity account, surrender charges may apply prior to the surrender charge period date of the contract. As shown in Figure 5, in step E1, the system 100 receives a withdrawal request from the investor via user interface tools 110. In step E2, rules processor 132 retrieves information stored in database 140 to determine if the date of the withdrawal request pre-

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dates the surrender charge period date such that surrender charges are due. If no surrender charges are due in step E3, withdrawal is accomplished in step E4. If surrender charges are due, the surrender charges are calculated in step E5, and the rules processor 132 returns to step E4 to effect  
5 withdrawal.

Additionally, if the investor's request for withdrawal of moneys is based upon need for the moneys for a stay in a nursing home, surrender charges may be waived if, following processing of certain rules by rules processor 132, certain predefined conditions are met. For example, an annuity contract may  
10 allow a penalty-free withdrawal if the investor has had the annuity contract for at least a minimum period of time prior to the withdrawal request.

Additionally, some annuity contracts may require that the investor stay in the nursing home for a minimum period of time. Some annuity contracts further require that such withdrawals of moneys occur during the investor's  
15 confinement to the nursing home or within ninety days after release of the investor from the nursing home. Finally, some annuity contracts require that the investor must have been under a certain age on the effective date of the annuity contract. Some or all of such requirements may apply in order to qualify for a penalty-free early withdrawal. The requirements will vary based  
20 on the insurer that issued the annuity contract.

There are other additional terms and conditions that may apply in connection with the annuity of the present invention and the rules processor 132 can be programmed to determine whether such requirements are being met. For example, the annuity contract may permit the investor to withdraw a  
25 certain amount of money from the annuity contract prior to the maturity date without penalty. Thus, when a withdrawal request is received by system 100, the rules-based processor 132 will compare the amount of money requested in the withdrawal request to the penalty-free amount permitted. If the amount of the withdrawal request is less than or equal to the penalty-free amount,  
30 then the withdrawal will be made and the investor will not be charged a penalty.

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A death benefit can also be provided in the annuity contract. For example, the annuity contract may provide for a death benefit which is equal to the annuity value at the date of the investor's death plus interest accrued.

5 A "free look" period may be provided in the annuity contract so that an investor who is trying to decide whether or not to purchase an annuity contract may pay principal and see how the annuity works for a limited period of time. If, following the limited "free look" period of time, the investor decides that he/she is not satisfied with the annuity, he/she can cancel the contract and receive a complete refund of his/her principal payment.

10 Other standard types of terms and conditions for annuity contracts may also be included in the annuity product of the present invention.

Once the surrender charge period date of the annuity contract is reached, the investor can start receiving regular income payments from the annuity account without incurring surrender penalty charges. The amount of  
15 the regular income payments are calculated using certain settlement age logic. The system 100 must first determine the investor's age at the time the contract matures. This is referred to as the "settlement age." The system 100 must also use insurers' mortality tables to determine the investor's life expectancy so that the income can be spread out over the remaining lifetime  
20 of the investor.

Advantages to the investor provided by the annuity product and process of the present invention include using an objective, familiar, published interest rate, to realize an annuity product with a yield tied to market factors. However, the contract also includes a minimum guaranteed  
25 interest rate so that in the event of an economic downturn the investor has some degree of protection of his/her principal. Typical target investors will be those who are risk averse and seeking tax deferral retirement methods.

On an administrative level for the insurer, existing systems could be used for the administration of such annuity contracts without any outsourcing.  
30 Product actuaries could perform pricing in house. Special sales and/or investment expertise of the insurer's employees is not required.

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It will be apparent to those skilled in the art that various modifications and variations can be made in the system and method of the present invention without departing from the scope or spirit of the invention. Thus, it is intended that the present invention cover the modifications and variations of this invention provided as long as they come within the scope of the appended claims and their equivalents.

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**WHAT IS CLAIMED IS:**

1. A process for providing an investor with periodic income payments, using at least an initial contribution of principal, comprising the steps of:

5 (a) providing a first interest rate for a first predetermined period, wherein the first interest rate is based on a national average interest rate index;

(b) providing a second interest rate for the first predetermined period as a minimum interest rate;

10 (c) comparing the first interest rate to the second interest rate and, if the first interest rate is greater than the second interest rate, then the first interest rate is multiplied by the principal to arrive at a first amount of interest earned on the principal for the first predetermined period, and wherein the principal plus the first amount of interest is equal to a first accumulated sum,  
15 and if the first interest rate is less than the second interest rate, then the second interest rate is multiplied by the principal to arrive at a second amount of interest earned on the principal for the first predetermined period, and wherein the principal plus the second amount of interest is equal to the first accumulated sum;

20 (d) repeating steps (a) through (c) for a second predetermined period equal to the first predetermined period;

(e) repeating steps (a) through (c) for a second predetermined period equal to the first predetermined period;

25 (e) repeating steps (a) through (d) periodically until a predetermined end date is reached; and

(f) after the predetermined end date is reached, withdrawing portions of the accumulated sum on a periodic basis.

2. The process of claim 1, wherein providing the first interest rate further comprises adding basis points and bonus points to a national one-year  
30 certificate of deposit average interest rate.



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3. The process of claim 1, wherein providing the first interest rate further comprises adding basis points and bonus points to a three-year certificate of deposit average interest rate.

5 4. The process of claim 1, wherein providing the first interest rate further comprises adding basis points and bonus points to a one-year Treasury bill average interest rate.

5. The process of claim 1, wherein the first predetermined period is equal to one year.

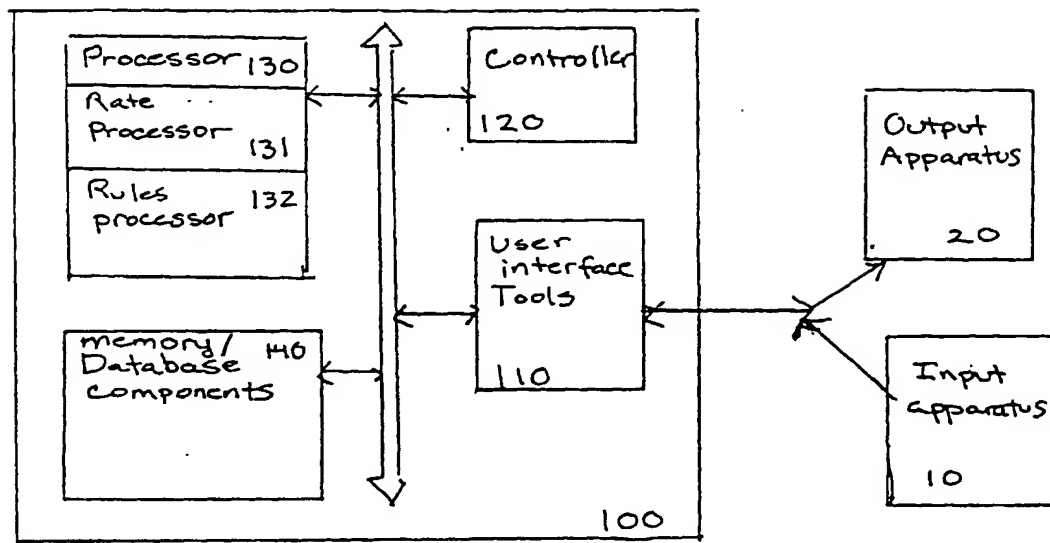


FIG 1

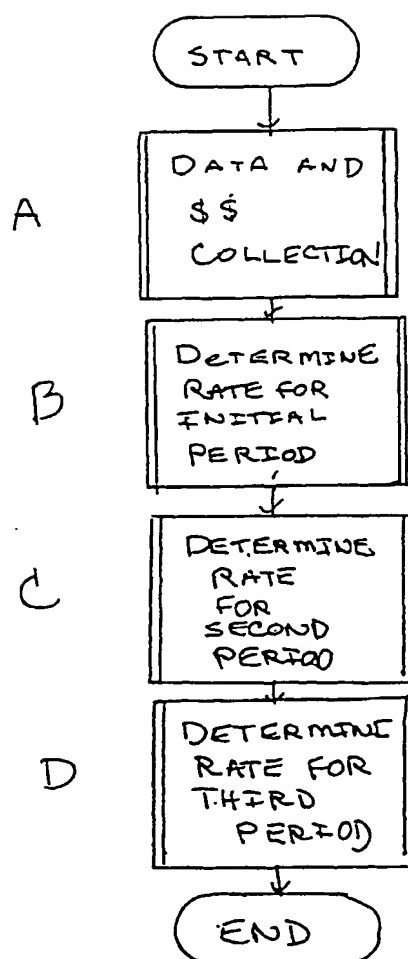


FIG. 2

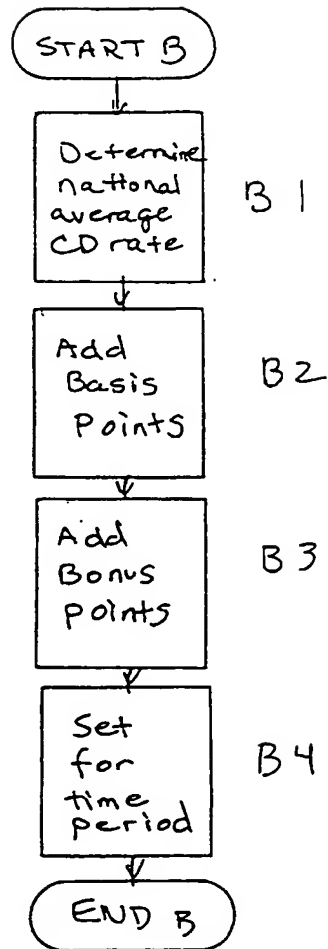


FIG. 3

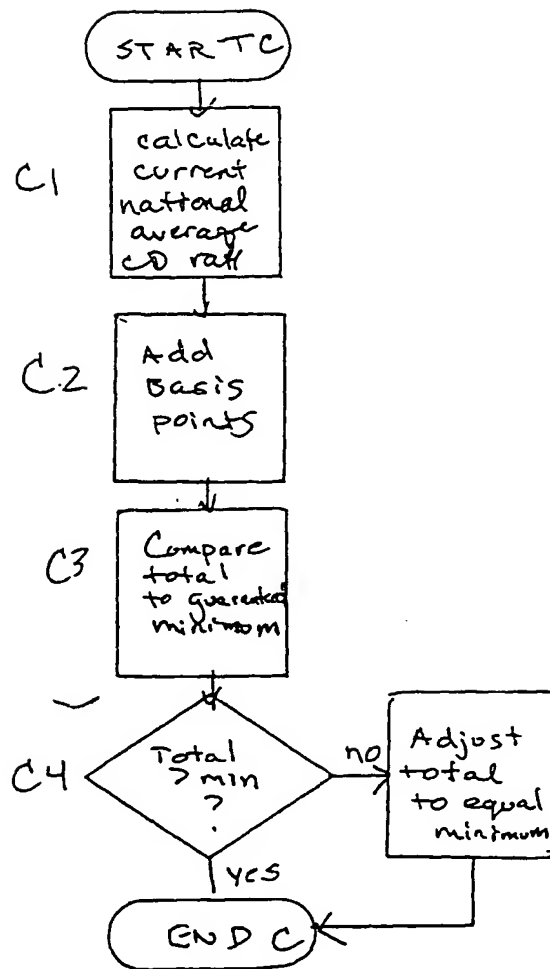


FIG. 4

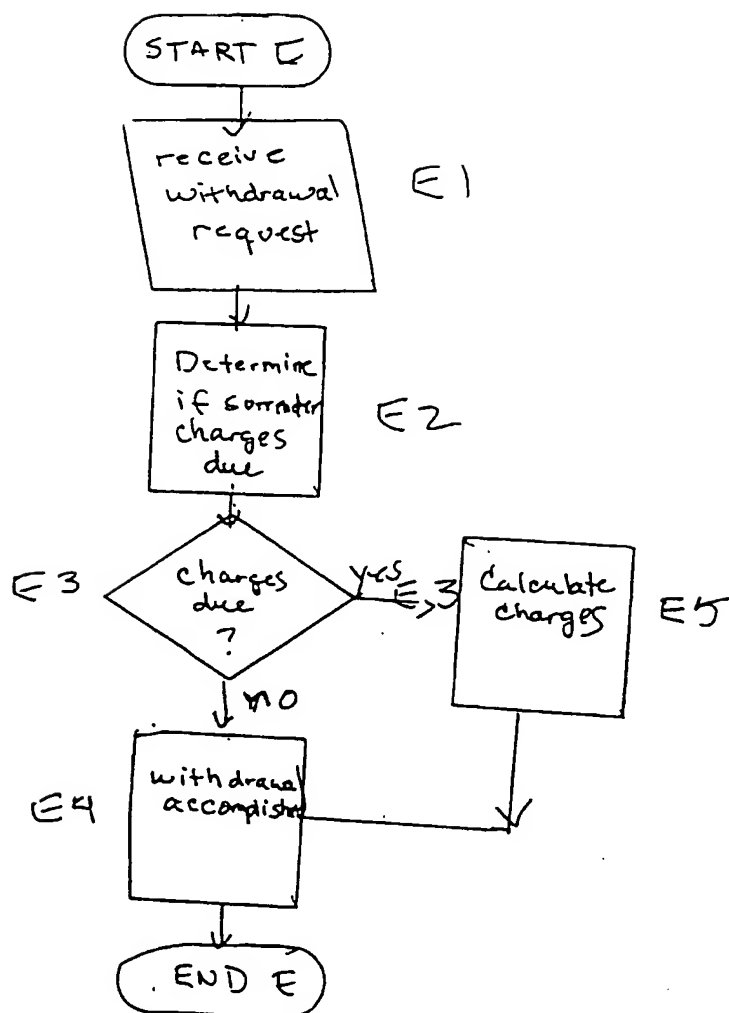


FIG 5

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/08287

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 17/60

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/36, 35, 39

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST, DIALOG

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,631,828 A (HAGAN) 20 May 1997, entire document.	1-5N
A	US 5,864,685 A (HAGAN) 26 January 1999, entire document.	1-5
A	US 5,893,071 A (COOPERSTEIN) 06 April 1999, entire document.	1-5
A	US 5,933,815 A (GOLDEN) 03 August 1999, entire document.	1-5

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Date of the actual completion of the international search

05 JULY 2001

Date of mailing of the international search report

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# INTERNATIONAL SEARCH REPORT

International application No.  
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## A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

705/36, 35, 39